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and Health at Teachers' College, registration, sick benefits, Red Cross work, and now the National Relief Fund; and through these things the almost incredible number of new openings coming to those who keep abreast of the times and well up to date through all these means.

The splendid success attained by all these agencies is due alone to the strong sense of duty and enthusiasm which impelled each individual member to give the best that was in her, not for herself alone but for the good of the profession. The *esprit de corps* has grown and strengthened, and you look to the *alumnæ* for the most far-sighted and progressive nurses. Membership in an association is the common requirement now in these new movements which are the natural outgrowth of these organizations. The recent ruling of the National Red Cross Committee that membership in the American Nurses' Association is necessary shows the standing and requirements of the nurses in the War Department before undertaking one of the most patriotic of our branches of work. Do we sufficiently realize and value the tremendous advantages that come to us from our training? If there was not one day's nursing done we are fitted to make better and happier homes and make others feel the joy of healthful living. Why then do we not owe the community a debt that our training has fitted us to discharge, and how better discharge it than through our *alumnæ*? Not to take part in these larger agencies proclaims an unprogressive spirit devoid of the desire and ambition that helps in the general uplift which needs that mite of aid each one of us can give. Can not each one of us determine that we shall not be a portion of that negative element?

EYE EXAMINATION, TREATMENT, AND OPERATION.

By HENRY GLOVER LANGWORTHY, M.D.,
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(Concluded from page 39.)

ANÆSTHESIA.

An anæsthetic may be defined as a substance which abolishes the sensation of pain. Anæsthesia may be *general*, if produced by the influence upon the central nervous system, or *local*, if merely the peripheral sensory nerve-endings are affected. Complete surgical anæsthesia is characterized by loss of consciousness, of all sensibility, and general muscular relaxation. Anæsthesia has been of inestimable benefit to mankind.

Many operations are performed every day which would be impossible without it. Previous to the use of anæsthetics almost no surgery was performed which was not absolutely necessary. The administration of an anæsthetic, the general preparation, and the after-care of the patient are all of the utmost importance to the nurse, for the reason that it is a daily routine. The principal general anæsthetics are ether, chloroform, and nitrous oxide. Various mixtures and combinations of these agents have from time to time been employed, but are not in extensive use.

General Anæsthesia.—As all substances which have been employed to induce general anæsthesia are volatile in the ordinary temperature, the drug is merely inhaled into the lungs from a cloth, cone, or other apparatus made for the purpose. Although we know that general anæsthesia is produced by the action of the drug upon the central nervous system, the exact process itself is unknown.

Ether.—Sulphuric ether is one of the safest and best anæsthetics. It is made from sulphuric acid and alcohol, and has a pungent odor. The vapor is about one and a half times as heavy as atmospheric air, and is inflammable. Solutions of ether should be kept securely corked in cans and in a cool, dark place. Certain precautions should be taken before giving ether or chloroform. The heart should be examined by the physician and no food allowed for at least six or seven hours before the operation, to avoid vomiting in the early stages of anæsthesia. The bowels and bladder should also be emptied beforehand. All false teeth, plates, etc., must be removed from the mouth. Great care is taken to preserve the patient's body heat during the unconscious state while on the operating table.

As mentioned elsewhere, a pus basin, mouth-gag, tongue forceps, towels, hypodermic needle and syringe, and small bottles of brandy, strychnine, atropine sulphate, and nitroglycerin should be at hand on the anæsthetist's table ready for use in cases of emergency. A tank of oxygen is usually found in most hospital operating rooms. An anæsthetic is always administered with the nurse present, not only that she may give any necessary assistance, but also that no unjust accusation may be brought against the anæsthetist by female patients. A towel folded in the shape of a cone and stiffened with paper placed between the two outer layers will serve to confine the ether vapor and prove a most serviceable apparatus. Two or three of these cones should be prepared, so that a clean cone may be substituted for one if soiled. Indications of complete anæsthesia are stertorous respiration, muscular relaxation, and absence of corneal reflex. While accidents from vomiting and choking are possible at all times, the principal danger to be guarded against is sudden

collapse. Collapse calls for the most prompt measures for relief, such as hot-water bottles, raising the foot of the table, hypodermic injections as ordered by the physician, rectal enemas, etc. When vomiting, the patient should be turned on the side, the mouth opened, and a careful watch kept of the color of the lips to see that the larynx and trachea are free. Preservation of the body heat tends to lessen the danger of collapse. Etherization is divided into two stages: the first stage is called *primary anæsthesia*, and the second stage *complete anæsthesia*. Primary anæsthesia is limited to simple incisions or various other brief operations. The patient is in his usual condition in ten or fifteen minutes after primary anæsthesia, and seldom vomits. Complete general anæsthesia, however, is the proper condition for the average **major** surgical operation. Ether is an irritant to the lungs, and for that reason produces considerable mucus in the throat. In many operations complicated by congestion of the lungs chloroform is to be preferred. In ether narcoses the nurse should watch the respiration and color of the skin, while in chloroform anæsthesia the pulse is to be carefully observed.

Chloroform.—Chloroform is more of a heart depressant than ether, but is less irritating and more pleasant to take. It is particularly useful with children for getting them under its influence quickly. The quantity of chloroform is always given by the so-called open method with a free admixture of air.

Method of Administration.—The eyes should be covered with a strip of gauze before administering any irritating anæsthetic. Liquid chloroform will blister the skin if held in contact with it for any length of time. Chloroform from a drop bottle is lightly sprinkled on a piece of lint of double thickness and at first held a few inches from the mouth; very soon, however, more is added and the gauze brought nearer and nearer to the face until the vapor is freely inhaled. Just before going under the effect of the anæsthetic the patient may struggle a little, but this stage is soon passed. Complete chloroform anæsthesia at about the same level may be maintained by dropping more of the chloroform on the outside of the gauze at short intervals. Patients, as a rule, vomit less after chloroform than they do with ether.

Nitrous Oxide.—This anæsthetic is coming more and more into use, not only for brief anæsthesia of from five to ten minutes, but for even longer periods. It is, as a rule, quite safe. The gas, preserved in convenient steel cylinders, is allowed to flow into a special face inhalation mask and here mixed with a small amount of oxygen. The after-effects are practically mild. Patients, as a rule, become slightly cyanosed or blue during the administration of nitrous oxide gas, but this is controlled

by allowing more oxygen to be breathed. Slight involuntary jerking of the muscles sometimes takes place in nitrous oxide narcosis, but is of little consequence.

Local Anæsthetics.—The principal local anæsthetics in extensive use are cocaine hydrochlorate and a freezing spray of ethyl chloride.

Cocaine.—Cocaine is a powerful alkaloid obtained from the leaves of the coca shrub, a native of Peru. Mucous membrane can be rendered anæsthetic by painting a 4 per cent. solution of cocaine hydrochlorate directly upon it. For the numbing of deep tissue, however, such as the subcutaneous region beneath the skin, the liquid must be injected in a sterile hypodermic syringe in a one-tenth per cent. solution. Cocaine has practically no effect if merely painted on the skin itself. The chief danger in the use of cocaine is the tendency to direct absorption of the drug into the circulation, producing symptoms of *cocaine poisoning*. Poisonous doses of cocaine exert a depressing action on the heart.

Ethyl Chloride Spray.—A freezing spray of ethyl chloride is much used as a convenient local anæsthetic in minor surgery. It is put up in a small glass flask with an adjustable spring cap covering a fine opening for the escape of the fluid in the form of a spray. By simply inverting the tube and directing the spray upon the area to be frozen at a distance of about ten inches, the part treated turns white and is then sufficiently benumbed for simple incisions.

AN OBSTETRICAL CASE.

By MARGARET MARY McCLOSKEY,
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I HAD decided to take a much-needed rest after my years of training, therefore I wrote to an old friend whom I had not seen for years, telling her that I was coming to spend a little vacation with her. She resided some miles from the city, and I said to myself: "I shall enjoy a couple of weeks away from the noise of the city." How much I enjoyed *that* vacation remains to be seen. I had an immediate answer from her, telling me to come the moment that I should finish my course, as she expected a new arrival at her home about September 23rd, and would like to have me there at the time. Now, September 23rd was the very day on which I was to graduate, so the moment that I received my diploma I departed post-haste, telling my schoolmates with some pride that I had a case awaiting me.